

REMARKS

In view of the foregoing amendments and the following remarks, reconsideration, reexamination, and allowance of the above-captioned application is respectfully requested. Claims 1-4 are pending in the application.

Page 2 of the Office Action sets forth an objection to the Abstract based on an informality in the language of the abstract. The Abstract has been amended as suggested by the Examiner, and also has been amended to remove the reference numerals.

Withdrawal of the objection to the Abstract is respectfully requested.

Page 2 of the Office Action also sets forth an objection to the Specification based on an informality at page 2, line 25. This paragraph of the Specification has been amended accordingly. Withdrawal of the objection to the Specification is respectfully requested.

Page 2 of the Office Action also sets forth an objection to Claim 1. Claim 1 has been amended to adopt the Examiner's suggestions. Applicants therefore request withdrawal of the objection to claim 1.

Pages 2 and 3 of the Office Action set forth a rejection of Claims 1-4 as allegedly being obvious under 35 U.S.C. §103(a), and therefore unpatentable, over U.S. Patent No. 5,382,276 to *Hakoun et al.* in view of U.S. Patent No. 6,412,677 to *Yoshikuni et al.* Applicants respectfully request reconsideration of this rejection for the following reasons.

Claim 1 is directed to an arrangement for cutting an optical fiber, the apparatus having a fiber cutter, a motor, a control unit, and a detector. The motor is provided to operate the fiber cutter. The motor is controlled by a control unit to start a cutting movement in response to a start signal generated when the fiber is located in the fiber cutter. A detector is connected to the control unit. The detector is adapted to detect snap off of the fiber. In response thereto, the detector causes the control unit to generate a stop signal to stop the cutting movement. Further, the cutting movement is automatically stopped at a predetermined position of the fiber cutter if no fiber snap off is detected.

Hakoun et al. discloses a method for cutting an optical fiber ribbon on an oblique angle. An apparatus 1 includes two jaws 12 and 13, an anvil 15, and a blade 17 attached to a cutter 16. *Hakoun et al.* discloses that once the jaws 12 and 13 are closed, the anvil 15 is moved along an axis Y toward the cutter 16 to place the fiber 11 under tension. See col. 4, lines 45-52, and col. 4, lines 10-16. The blade 17 of the cutter 16 is then displaced along the Y axis toward the anvil 15, cutting the fibers 11.

Yoshikuni et al. discloses a device for cutting a sheet of plate glass mother material having a size of about 85 mm x 85 mm x 8 mm in thickness. See col. 5, lines 6-10. The glass is intended to be cut into smaller portions, each having a precise weight. The smaller portions are then used in a reheat press method to form optical elements such as lenses and prisms. To provide lines along which the plate glass mother material will crack, the bottom surface of the plate glass mother material 20 has grooves with a depth of about 0.45 mm. A servo-motor lowers an indenter 191 onto the surface of the plate glass mother material so the indenter 191 is aligned above one of the grooves in the plate glass mother material. As illustrated in Figure 8, and as discussed at column 6, lines 12-21, the indenter

191 is lowered onto the plate glass material above the groove, and is further pressed against the plate glass material, causing the plate glass mother material 20 to crack along the groove. The amount of pressure needed to crack the plate glass mother material 20 will vary depending on the specific cutting situation. See col. 2, lines 27-36. Therefore, a vibration sensor 193 is provided so that when the glass cracks, vibration occurring in the plate glass is transmitted to the vibration sensor 193, and the servo motor 192 stops the downward movement of the indenter 191 against the plate glass material 20.

The Office Action characterizes *Hakoun et al.* as disclosing "the invention "substantially as claimed except for a detector to detect completion of the of the cut to effect the stop of the workpiece cutting movement". To remedy this deficiency, the Office Action points to *Yoshikuni et al.* as disclosing a detector.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

It is respectfully submitted that the references do not provide any motivation to combine the references in the manner proposed by the Office Action. First, the plate glass cut by the *Yoshikuni et al.* device is very different than the fiber optic ribbon cut by the *Hakoun et al.* device. As discussed above, the plate glass mother material is a sheet of poured glass suitable which is about 8 mm. The optical fiber ribbons in *Hakoun et al.* are significantly thinner than this and are shaped differently than the plate glass. Moreover,

the *Hakoun et al.* device uses a blade to sever the fiber, while *Yoshikuni et al.* simply presses an indenter against the glass plate to bend the plate until the oppositely etched groove begins to crack. Based on these differences, one would not look to *Yoshikuni et al.* to provide any teachings related to the cutting of fiber optic ribbons.

Although the Office Action asserts that one of ordinary skill in the art would be motivated by a desire to have "better automated cutting" to provide the *Hakoun et al.* fiber optic ribbon cutting device with the detector of *Yoshikuni et al.*, nothing in *Hakoun et al.* suggests that automated cutting is desirable. *Hakoun et al.* does not disclose a motor for operating the cutting device or a control unit to start the cutting movement and to generate a stop signal. *Hakoun et al.* indicates only that the jaws 12 and 13 are closed, that thereafter the anvil 15 is displaced toward the cutter, after which the blade 17 of the cutter 16 is displaced toward the anvil 15. Nothing in *Hakoun et al.* suggests automating the cutting process. Moreover, *Yoshikuni et al.*'s description of a plate glass cutting method can provide no suggestion regarding automating the very different process of obliquely cutting optical fibers. Any such motivation can only be found in the Applicants' specification itself.

Applicants further respectfully submit that the hypothetical combination of *Yoshikuni et al.* and *Hakoun et al.* would not result in an arrangement having all of the claimed features. For example, neither *Hakoun et al.* nor *Yoshikuni et al.* discloses the feature that the cutting movement is automatically stopped at a predetermined position of the fiber cutter if no fiber snap off is detected. *Yoshikuni et al.* discloses only that the

vibration sensor controls the servo motor to stop the indenter from advancing after the cutting is completed. Nothing is disclosed regarding automatically stopping the cutting movement if no snap off is detected. It appears that in *Yoshikuni et al.*, the indenter 191 and indenting base 190 will continue to move in a downward direction if no vibration is detected. Nor does *Hakoun et al.* disclose a device with an automatic stopping feature.

Accordingly, the hypothetical combination of *Hakoun et al.* and *Yoshikuni et al.* fails to disclose or suggest all the features of Claim 1.

The dependent claims are believed to be allowable for the same reason that Claim 1 is allowable. A few comments regarding dependent claim 2 are provided to expedite prosecution of the application.

Applicants respectfully disagree with the statement in the Office Action that "it would have been obvious to one of ordinary skill in the art at the time of the instant invention to provide the device of *Hakoun et al.* as modified above with a linear motor to provide positive driving force for the cutter". As acknowledged by the Office Action, neither *Yoshikuni et al.* nor *Hakoun et al.* discloses the use of a linear motor. The rejection of claim 2 appears to be based on the possibility that a linear motor could be used instead of the servo-motor of *Yoshikuni et al.* However, the mere fact that a prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). The mere assertion that it would have been obvious to use a linear motor in the *Hakoun et al.* optical fiber ribbon cutting device is insufficient to establish a *prima facie* case of obviousness.

In addition, the Examiner is requested to provide some evidentiary basis for the assertion that linear motors are well known in the art most closely related to the subject matter of the invention (e.g., fiber optic cutting devices).

For at least the foregoing reasons, withdrawal of the rejection of Claims 1-4 under 35 U.S.C. § 103(a) is respectfully requested.

As all outstanding matters have been addressed, the application is believed to be in condition for allowance. An early Notice of Allowability is earnestly solicited.

Should the Examiner have any questions regarding this Amendment, or regarding the application in general, he is cordially invited to contact the undersigned at the number listed below in order to expedite prosecution of the application.

Respectfully submitted,

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